

AIR PUMPS • AIR MOTORS • GAS PUMPS



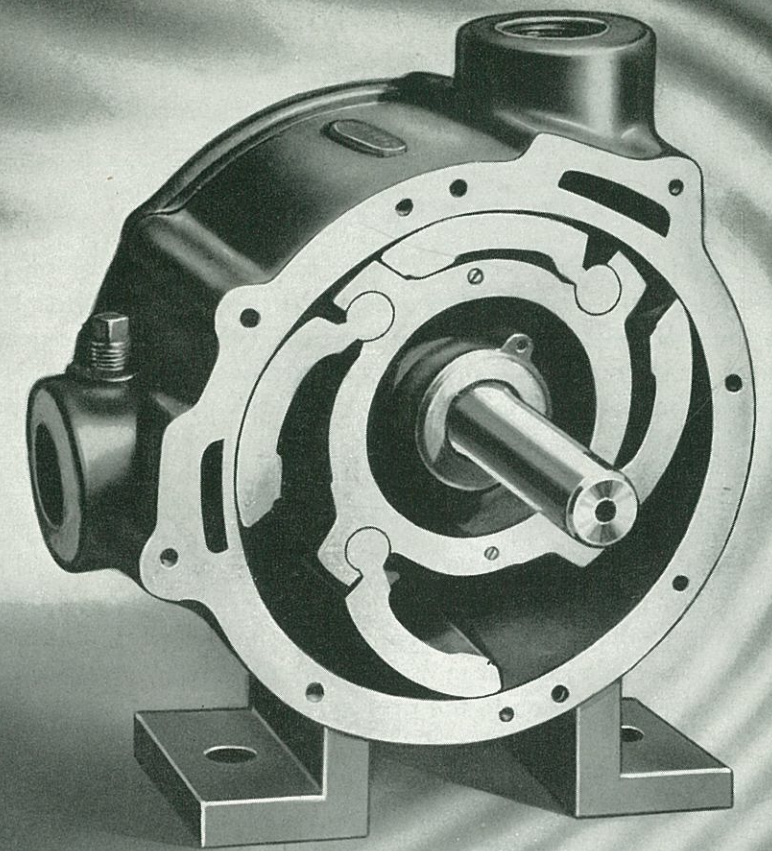
LEIMAN BROS., INC.
Established 1889
NEWARK 5 • N. J.

1948

• CATALOG 450

APPLICATIONS

•
Agitating
Blowing
Displacing
Distributing
Holding
Lifting
Mixing
Moving
Sorting
Separating



LEIMAN AIR PUMPS

ROTARY POSITIVE TYPE FOR VACUUM OR PRESSURE

AIR MOTORS & GAS PUMPS



LEIMAN BROS., INC. *Established 1889 • Newark 5, N. J.*

OVER 60 YEARS OF ENGINEERING RESEARCH AND DEVELOPMENT

What is an Air Pump?

An air pump is a machine for producing a smooth, continuous flow of air to be used for suction (vacuum) or pressure. This suction or air pressure may be used for lifting or holding objects, or for blowing or transferring materials, including liquids and gases.

How are Air Pumps Used?

Where light materials such as paper, cardboard, thin metal, plastics, etc., in the form of sheets or small parts must be lifted or held in place temporarily, air suction applied to the object usually does the job better and more economically than a mechanical device. Where vacuums must be created, as in some filling or mixing operations, an air pump is the obvious solution. Where materials must be blown, liquids agitated, or gas pressures increased, an air pump will provide the needed pressure.

Where are Air Pumps Used?

Since 1889, Leiman Rotary Positive Air Pumps have been used by the leading firms in many industries and for many different uses, some of which are listed below. Other applications will suggest themselves to the design engineer and to the plant manager faced with finding a better way of handling a specific job. Air in the form of vacuum or pressure or both may be the most satisfactory and economical solution to the problem.

PACKAGING

Bottle filling
Disposal of waste from paper converting machines
Wrapping machines
Carton making

Bag and carton filling
Filling machines
Molding machines, papier mache, etc.
Can filling
Transferring liquids

Paper folding
Labeling
Paper fabricating
Sealing machines
Inspection operations

PRINTING, BOOKBINDING, and CONVERTING

Printing presses
Paper handling
Gummed paper machines
Manifolding machines
Stereotype casting

Bookbinding machinery
Folders
Ruling machines
Inserting and mailing machines
Gathering machines

Tag making machines
Gluing machines
Printing frames
Ink drying

METALS

Air for annealing, casting, hardening, tempering, melting, forging, cleaning, sand blasting, vacuum chucks, dust collecting.

SERVICES

Milking machines
Aspirating units
Evaporating machines
Fumigators
Floor scrubbing units

Fuel oil burners
Distillators
Embalming
Carpet cleaning
Food washing
Sump cleaning

Barrel cleaning
Fur coat cleaning
Dough-dividing machines
Filtration
Air conditioning
Vending machines

MISCELLANEOUS

Gas boosting and gas well boosting
Chuckling devices — paper, light metal, glass, etc.
Dust collecting
Evaporators
Gasoline heater test stands
Pump priming
Testing for leaks
Aerating liquids to quicken freezing
Blowing
Liquid displacement
Spraying

Disposal (hospital operating rooms)
Carburetor production testing
De-airing ceramics (air bubble removal)
Feeding machines of all types
Sampling gas or liquid
Aerating dry materials
Gas furnaces
Dusting
Glass blowing
Pneumatic controls
Instrument testing

Cleaning
Machine controls
Distillators
Holding devices
Speed counters
Oil reclaimers
Textile machinery
Atomizing — wax and bronze sprayers
Generating gases from liquid fuels
Sewage ejectors
Enlarging (hospital units)

What They Say About Leiman Air Pumps

Never Wear Out or Give Trouble

"In my entire experience I have never seen a Leiman Air Pump wear out or give trouble."
— from the supervisor of a famous trade school

Used 350 Without a Complaint

"We are using your air pumps on 350 of our machines and in no instance has your pump given a moment's trouble, in spite of the fact that in most cases our machines are installed in factories where the employees are not familiar with machinery."

— a packaging machinery builder

Nearly 24 Hours Per Day for 21 Years

"We have one in almost continuous operation for 24 hours per day for the last 21 years. The air has been used for agitation of water. It is as near noiseless as any pump can be and absolutely reliable in every respect."

— superintendent of a refrigerating plant

Replaces a Reciprocating Pump

"Your pump is used on a vacuum frame unit . . . replaced a reciprocating pump which was so noisy the men demanded its removal. When your pump operates there is no noise to be heard above the sound of the motor. It works quickly and quietly."

— mechanical superintendent of a newspaper printing plant

Not One Bit of Trouble

"We have three of your blowers working on different jobs in our plant for the past five years and have never had one bit of trouble."

— chief engineer of a paper converting plant

Twelve Years Without Any Attention

"We have two Leiman pumps on one of our two-color presses which have been operating for twelve years without any attention whatsoever except for lubrication. We have Leiman pumps on other presses in our plant and these perform just as satisfactorily."

— superintendent of a large New York City printing plant

How to select your Air Pump

There are three common types of air pumps used in industry today — the straight line piston or reciprocating — the centrifugal fan — and the rotary positive. The reciprocating type pump is used where high pressure or vacuum is required — that is, beyond the range of the rotary positive type. This reciprocating type must have valves. It requires renewable piston rings to compensate for wear and air reservoir to smooth out pulsations in order to produce as steady a flow as the rotary type.

The centrifugal fan type is used where only ounces of pressure are needed, because this type cannot be used efficiently where a pipe smaller than the size of the inlet and outlet is to be used. The pipe sizes are relatively large when compared with the rotary type. The fan type must be operated at high speeds, resulting in greater wear at the bearings. Fans are noisy at these high speeds and their operation is less efficient due to greater air slippage between fan and housing.

The Leiman Rotary Positive Type is to be preferred for work within its capacity as to volume, pressure or vacuum, because of the even and continuous flow of air or gas. The air or gas may be taken directly from these rotary pumps without the use of a storage tank.

The advantages of the Leiman rotary type over reciprocating pumps are that they deliver a continuous flow of air practically free from pulsations, avoid reciprocating complications, are simpler in construction, are much smaller in dimensions for a given capacity, occupy less space, and cost less to install and maintain. They are designed for applications where vacuums are required up to 29 in. and pressures up to 25 lbs. per square inch.

Saves Maintenance Cost

"A Leiman Air Pump is one of the best pumps I have ever worked with. It requires practically no maintenance."

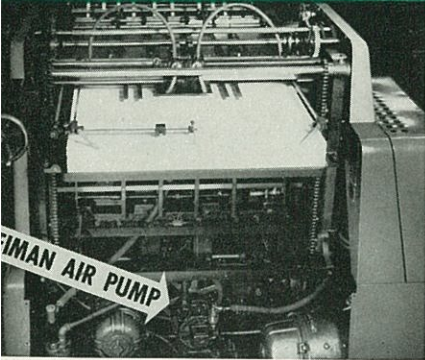
— master mechanic of a large soap factory

Performance Tested

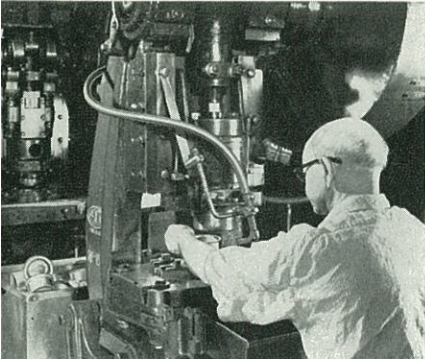
"We have been building machinery for bookbinders for a good many years and have bought thousands of air pumps. In actual performance Leiman Air Pumps have proved their quality and dependability."

— manufacturer of book-binding machinery

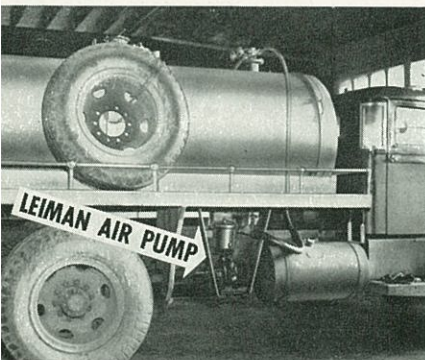
4-WING TYPE AIR PUMPS



A Leiman Air Pump furnishes the air required in the feeding operation of the newelly Three printing press.



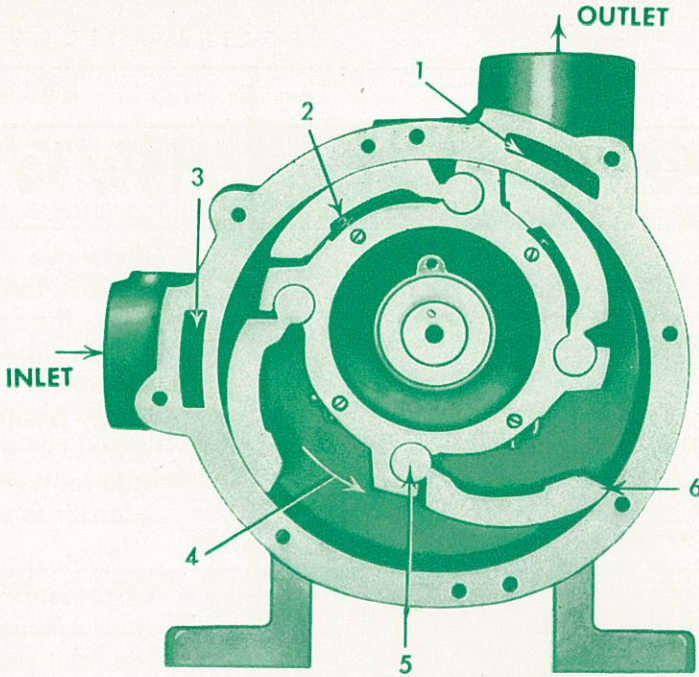
Finished stampings of light metal are ejected by air pressure, after fabrication, from a blanking press. A Leiman Air Pump furnishes the air.



A Leiman Air Pump mounted on a chemical tank truck supplies the air pressure needed to force the liquids from the tank.



In this glassblowing operation a Leiman Air Pump provides a steady, dependable flow of gas and air to the burner.



Features

- 1. Air from cylinder through by-pass in cylinder head enters this slot on its way to the outlet above. No opening in curved inner surface means quiet operation.
- 2. Enclosed stud in piston holds wing close to cylinder at top.
- 3. Air coming in at inlet at side comes through this slot into cylinder head by-pass and then into the cylinder. No opening in curved inner surface of cylinder means quiet operation.
- 4. Direction of rotation showing how ex-

- tended wing scoops up the air at the inlet and carries it around to the outlet.
- 5. The easy-action hinge enables wing to open and close by the action of centrifugal force.
- 6. Wing and cylinder surfaces become hard and glassy-like, insuring a perfect fit and positive pressure or vacuum. There are no composition tips to require frequent renewal.
- 7. Inlet and outlet threaded for standard iron pipe.

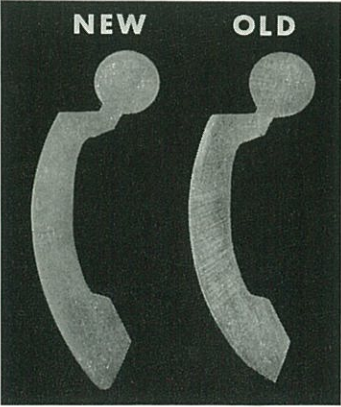
It Takes Up Its Own Wear

The interior construction of this 4-wing type is so arranged that the wings take up their own wear. They wear uniformly, regardless of age, and maintain perfect contact with the inner cylinder wall. The photograph below shows two similar wings taken from Leiman Air Pumps. The new wing was never in service whereas the old wing saw 12 years service. Note how the end of the old wing which comes in contact with the inner curved cylinder shows signs of wear. This wing is still in good condition and is ready for many more years of active service.

Perfect Vacuum or Compression

The wings are hinged to the piston and centrifugal force insures their close, continual contact with the curved inner wall of the cylinder. Each wing as it reaches the top is kept close to this inner cylinder wall by a pressure stud, thus preventing the air from returning to the intake — providing a perfect compression or positive vacuum at all times.

Every part of a Leiman Air Pump is machined to close tolerances and accurately fitted in the final assembly. As a result, no gaskets or other packing are ever required.

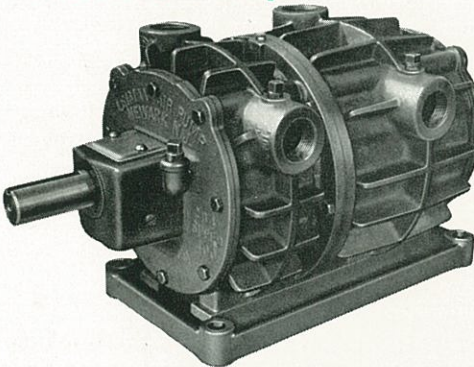


SPECIFICATIONS

4 - WING TYPE																					
Size of Pump →		A		B		B-3*		C		C-4½*		C-6*		D		E		F-8*		G*	
Cu. ft. per min. displacement		4.8	8	8.5	10	12.7	15	15	18	22	27	30	37	25	35	61	73	105	115	147	162
Speed in rev. per minute		600	750	600	700	600	700	400	500	400	500	400	500	300	425	250	300	200	220	200	220
Pipe Size		½"		¾"		¾"		1"		1"		1"		1 ¼"		1 ½"		2"		2 ½"	
Weight		23 lb.		27 lb.		31 lb.		45 lb.		56 lb.		60 lb.		79 lb.		148 lb.		288 lb.		303 lb.	
VACUUM HORSE POWER	at 6"	¼	⅓	⅓	⅓	½	½	½	½	¾	¾	1	1	¾	1	1½	2	3	3	5	5
	at 10"	⅓	½	½	½	¾	¾	¾	¾	1	1	1½	1½	1	1½	2	3	5	5	5	7½
	at 15" inter.	½	½	½	½	¾	¾	1	1	1½	1½	2	2	1½	2	3	3	5	7½	7½	7½
	at 15" steady	½	½	½	½	¾	¾	1	1	1½	1½	2	2	1½ W	2W	3W	3W	5W	7½ W	7½ W	7½ W
	at 20" inter.	½	½	¾	¾	1	1	1	1½	1½	2	2	3	2	3	5	5	7½	7½	7½	10
	at 20" steady	½	½	¾	¾	1	1	1	1½	1½	2			2W	3W	5W	5W	7½ W	7½ W	7½ W	10W
PRESSURE HORSE POWER	at 3 lb.	¼	⅓	⅓	⅓	½	½	½	½	¾	1	1	1	¾	1	1½	2	3	3	5	5
	at 5 lb.	⅓	½	½	½	¾	¾	¾	¾	1	1	1½	1½	1	1½	2	3	5	5	5	7½
	at 10 lb. inter.	½	½	¾	¾	1	1	1	1½	1½	2	2	3	2	3	5	5	7½	7½	7½	10
	at 10 lb. steady	½	½	¾	¾	1	1	1	1½	1½	2	2	3	2W	3W	5W	5W	7½ W	7½ W	7½ W	10W

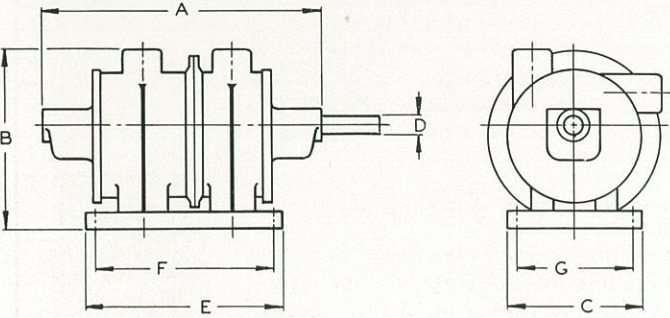
W—These pumps are water cooled when used for steady service of more than ½ hour. Inter.—Intermittent * Not always carried in stock.

2 Cylinder Vacuum and Pressure Pumps



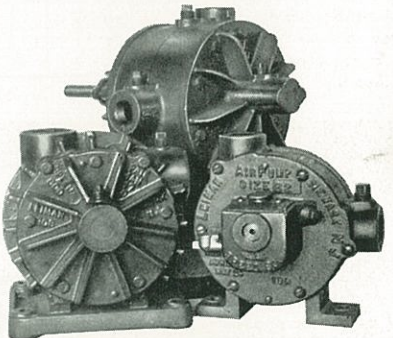
This single pump having two cylinders is much more compact than two separate single-cylinder pumps and is ideal for certain installations where both blowing and suction are needed. Each cylinder may be used for either pressure or vacuum independently of the other or both may be used for vacuum or pressure in the same manner. One cylinder may operate up to 20 inches of vacuum or up to 10 lbs. pressure.

Both rotors work efficiently on a single shaft, but there is no leakage from one cylinder to the other because of a precision method of finishing and fitting the separating wall.



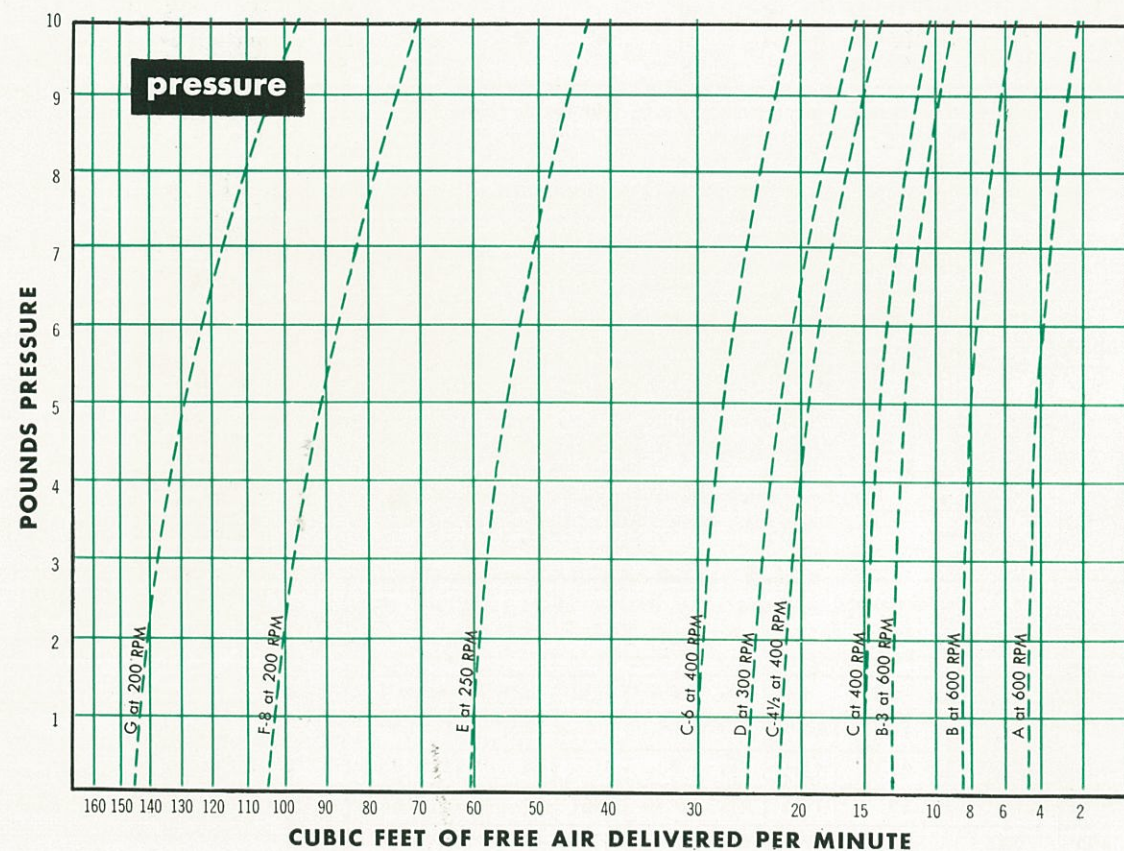
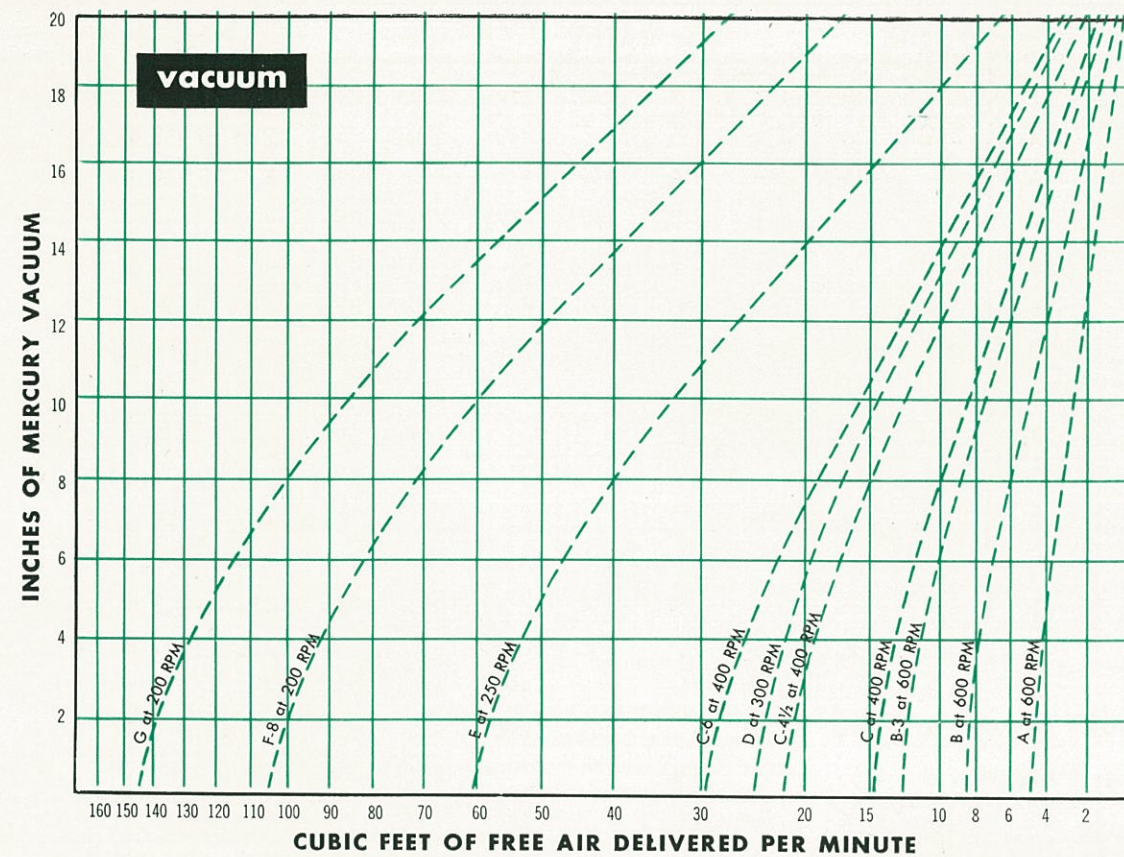
Pump Size	R.P.M.	C.F.M. Displacement		A	B	C	D	E	F	G
		Narrow Pump	Wide Pump							
B 2 x 2	600	8.5	8.5	9 ½	7 ¾	6 ¾	1 ¾	5 ¾	4 ¾	5 1 ½
C 3 x 3	400	15.	15.	13	9 ½	7	1	10 ¼	9 ¼	6
C 3 x 4 ½	400	15.	22.5	14 ½	9 ½	7	1	12	11	6
C 3 x 6	400	15.	30	16 ¾	9 ¾	7	1 ½	12	11	6
C 4 ½ x 6	400	22.5	30	17 ¾	9 ¾	7	1 ½	14	13	6

Dimensions in Inches.



Air Cooled and Water Cooled Models

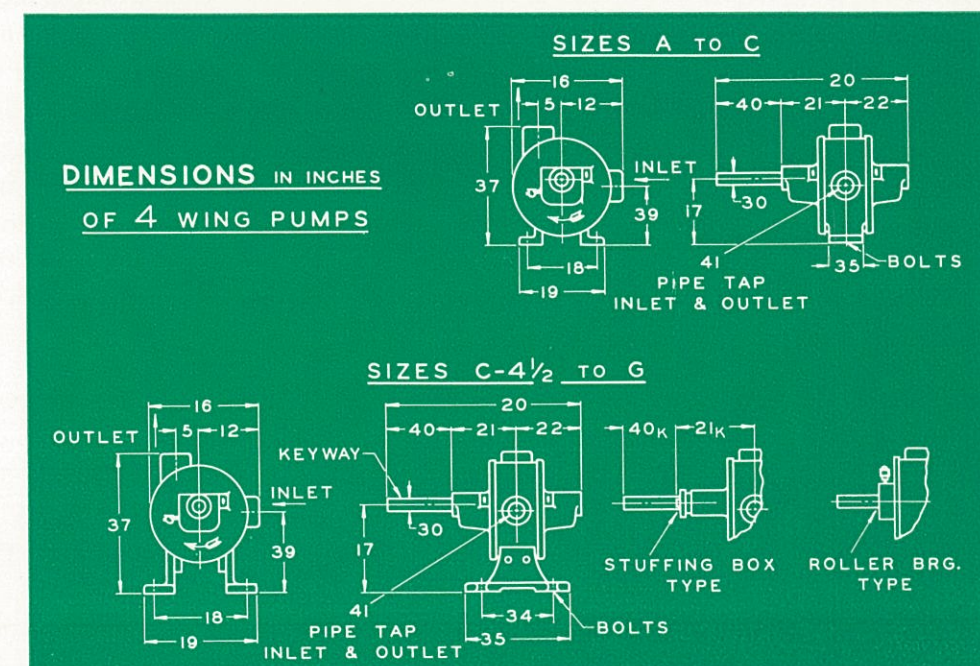
Air subjected to pressure or the presence of a high degree of vacuum will heat up a pump. The hinged wings of the 4-wing type are not affected by the metal expansion, because they open and close on the hinges with very little action. As an extra precaution against heat, certain pump sizes are built with air cooling fins. Other sizes which operate under the most extreme conditions are equipped with water cooling jackets.



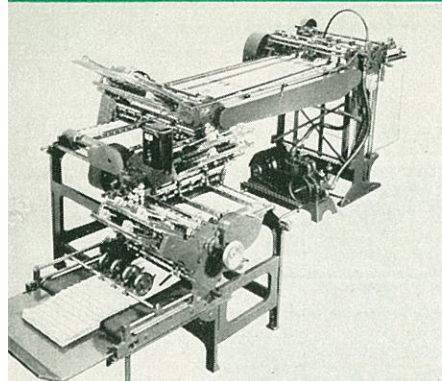
4-WING PUMP SIZES

DIM. NO.	A	B	B-3	C	C-4½	C-6	D	E	F-8	G
5	1 1/8	1 1/4	1 1/4	1 5/8	2 3/16	2 3/16	2 1/2	2 5/8	4	4 1/2
12	3 3/8	3 7/8	3 7/8	4 1/2	4 1/2	4 1/2	6 5/16	7 3/8	9 1/8	10 5/8
16	5 7/8	6 13/16	6 13/16	8 1/8	8 7/8	9	11 1/4	13 3/4	17	19 3/8
17	3 7/16	4	4	4 21/32	5 7/16	6 21/32	7 1/16	8 5/16	9 3/4	11
18	4	5	5	5 1/4	6 13/16	7	7 5/8	10 1/2	14	16 1/8
19	5 1/16	6	6	6 3/8	7 7/8	8 3/4	9 5/16	12 3/8	16 1/4	18 1/4
20	10 7/8	10 3/4	11 3/4	14	13	13 7/16	17	23 7/8	28	33 1/16
21	3 9/16	3 1/2	4	4 1/2	5 1/4	5	5 3/4	8 11/16	11 7/8	11 1/16
21 _k	4 13/16	4 13/16	5 5/16	5 7/8			7 1/8	10	13 3/4	12 3/4
22	3 9/16	3 1/2	4	4 1/2	5 1/4	4 31/32	5 3/4	8 11/16	10 1/2	12
30	1 1/16	1 1/16	1 1/16	1 3/16	1	1	1	1 1/4	1 1/16	1 1/16
34					5 1/4	5 1/4	8	9 1/2	10 1/8	10 15/16
35	1 7/8	1 7/8	2 1/4	2 3/4	6 1/4	7 5/8	10 5/8	12 7/16	13 1/2	14 1/2
37	6 5/32	7 3/32	7 3/32	8 1/2	9 3/8	10 5/8	12	14 1/8	17 1/8	19 9/16
39	3 5/32	3 19/32	3 19/32	4 1/8	7 1/16	8 5/16	6 3/8	7 1/4	8 1/2	9 3/8
40	3 3/4	3 3/4	3 3/4	5	2 1/2	3 3/8	5 1/2	6 1/2	7	10 1/8
40 _k	2 1/2	2 1/2	2 1/2	3 5/8			4 1/4	5 1/4	5 3/4	7
41	1/2	3/4	3/4	1	1	1	1 1/4	1 1/2	2	2 1/2
BOLTS	3/8	3/8	3/8	1/2	3/8	3/8	7/16	7/16	1/2	1/2
KEYWAY						1/4	1/4	1/4	3/8	3/8
TYPE BRG.	W or S	W or S	W or S	W or S	W	R	W or S	W or S	W or S	S or O

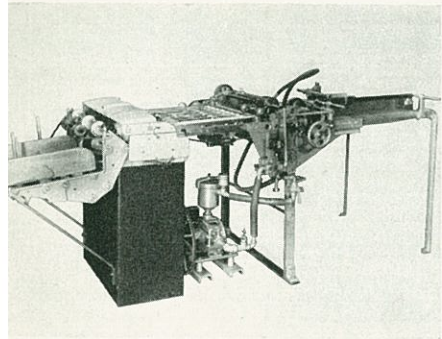
NOTE W = Wool Packed Bearing S = Stuffing Box Type R = Roller Bearing Type
O = Ring Oiler Type



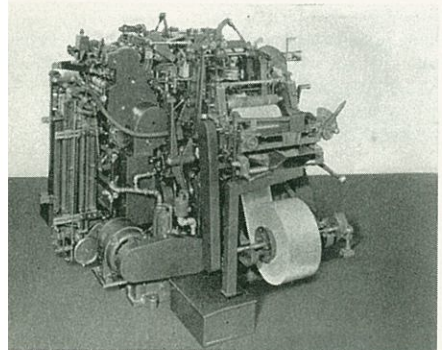
2-WING TYPE AIR PUMPS



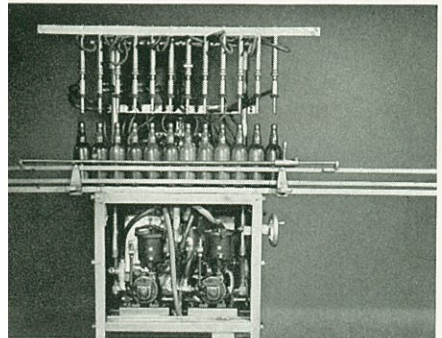
A Leiman Air Pump is a compact unit requiring only a small amount of space. This pump is installed at the base of a paper folding machine and supplies the blowing and suction needed for the feeding operation.



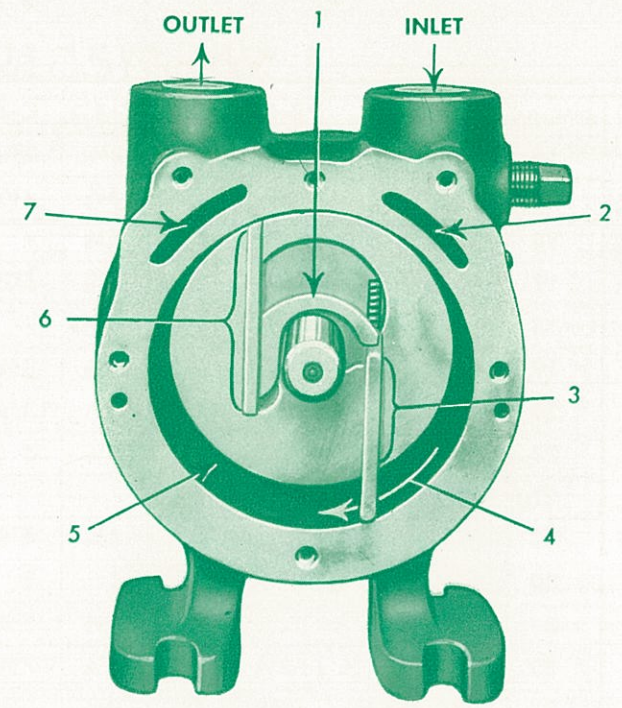
A paper perforator and feeding unit is equipped with a Leiman Air Pump. One pump provides both vacuum and pressure for handling large sheets of paper.



Air from a Leiman Air Pump helps to feed cotton blanks into this double package making machine.



Vacuum filling of bottles and tubes requires that the air be first exhausted from the container. Two Leiman Air Pumps provide the suction for this purpose.



Features

1. The Patented Automatic Wing Adjuster.
2. Air coming in at inlet at top passes through this slot into piston head by-pass and then into cylinder. No opening in curved inner surface of cylinder means quiet operation.
3. The large proportion of wing which always remains in piston slot gives firm bearing and eliminates chattering and fluctuation of air delivery or vacuum.
4. Direction of rotation combined with firm, extra long wing bearing in piston slot and offset of wings from shaft center means easy, noiseless operation.
5. Large proportional air space makes it possible to use a small, compact machine.
6. Wing offset from shaft has extra long slot in piston for rigid bearing.
7. Air from cylinder through by-pass in cylinder head enters this slot on its way to the outlet above. No opening in inner curved cylinder wall means quiet operation.

Outlet and inlet threaded for standard iron pipe.

The 2-wing pump is designed for installations requiring a higher degree of vacuum or pressure, but less cubic foot displacement than the 4-wing type. The extra long wings provide more bearing surface when fitted into the long wing slots. They are rigidly constructed and designed for years of wear. These long wings seal up the air, preventing its escape through back leakage, insuring positive delivery of air at the outlet regardless of pressure and preventing vibration or variation of air pressure. Where vacuum is used the long seal increases the strength of the vacuum, making a steadier and more positive action.

Automatic Wing Adjuster

This curved lever connection is attached to one wing and operates as the piston revolves in the cylinder. It adjusts automatically and pushes the wings out in contact with the curved wall of the cylinder. In operation the wings adjust themselves by means of centrifugal force combined with the action of this quiet Automatic Wing Adjuster. The wings, as they revolve, maintain perfect contact with the inner curved surface of the cylinder. The use of this unique, patented adjuster makes it impossible for the wings in this pump to stick or bind.

SPECIFICATIONS

2-WING TYPE																
Size of Pump →	25		26-1½			27-2		28-2*		28-3		29-3		29-6		
Cu. ft. per min. displacement	.8	1.2	1.6	2.4	3.6	3	4.4	5.1	7.6	9.3	12.4	15.3	20.4	25.5	30.6	40.8
Speed in rev. per minute	1200	1750	800	1200	1750	600	800	600	800	600	800	600	800	500	600	800
Pipe Size	¼"		¾"			½"		¾"		¾"		1"		1"		
Weight	3 lb.		8 lb.			17 lb.		20 lb.		32 lb.		51 lb.		78 lb.		
VACUUM HORSE POWER	at 24" inter.	⅛	⅛	⅛	¼	⅓	⅓	⅓	1	¾	1	1½	1½	1½	2	3
	at 24" steady	⅛		⅛	¼		⅓	⅓	1W	¾W	1W	1½W	1½W	1½W	2W	3W
	at 27" inter.	⅛	⅛	⅛	¼	½	⅓	⅓	1	1	1	1½	2	2	2	3
	at 27" steady	⅛		⅛	¼		⅓	⅓	1W	1W	1W	1½W	2W	2W	2W	3W
	at 29" steady	(27" max.)		(27" max.)		⅓	⅓	¾	1W	1W	1W	1½W	2W	2W	2W	3W
PRESSURE HORSE POWER	at 15 lb. inter.	⅛	⅛	¼	⅓	½	⅓	⅓	1	1	1	1½	2	2	3	3
	at 15 lb. steady	⅛	⅛	¼	⅓	½	⅓	⅓	1	1	1	1½	2	2	3	3
	at 20 lb. inter.	⅛	¼	¼	½	½	⅓	¾	1	1	1½	2	2	3	3	5
	at 20 lb. steady						½	¾	¾	1W	1W	1½W	2W	2W	3W	5W
	at 25 lb. inter.	⅛	⅓	⅓	½	¾										
	at 25 lb. steady						¾	1	1	1½W	1½W	2W	2W	3W	3W	5W

W — These pumps are water cooled when used for steady service of more than ½ hour. Inter.—Intermittent * Not always carried in stock.

Bearings

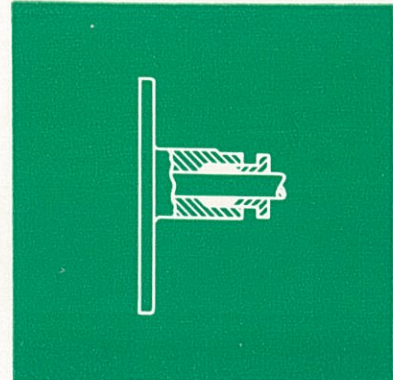
STUFFING BOX OR GAS TIGHT BEARINGS
When Leiman Air Pumps are used for pumping or boosting gas or where the highest degree of vacuum or pressure is required, we furnish this type of bearing. It has an adjustable nut and packing gland on the shaft of the pulley side and the opposite side of the pump has a closed up or blind bearing.

RING OIL BEARINGS
The shaft bearings are furnished with a double ring oiling device in the large size pumps for the lower degrees of air pressure or vacuum. The oil well is filled with machine oil and as the shaft revolves, the rings dip into the oil and

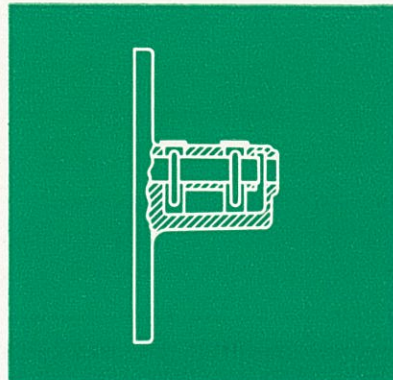
carry it up on the shaft. This insures a well lubricated bearing and trouble-free operation.

WOOL YARN BEARINGS
Most Leiman Air Pumps, except those built for the highest degree of vacuum or pressure, are fitted with our latest type wool yarn packed bearing. These bearings will provide ample lubrication for many months of continuous service. The wool also filters the oil and prevents any foreign matter from reaching the polished bearing and shaft surfaces.

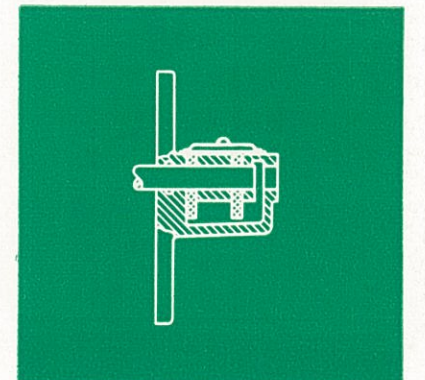
ROLLER OR BALL BEARINGS
These bearings are available in certain pump sizes and are standard equipment on all Leiman Air Motors.



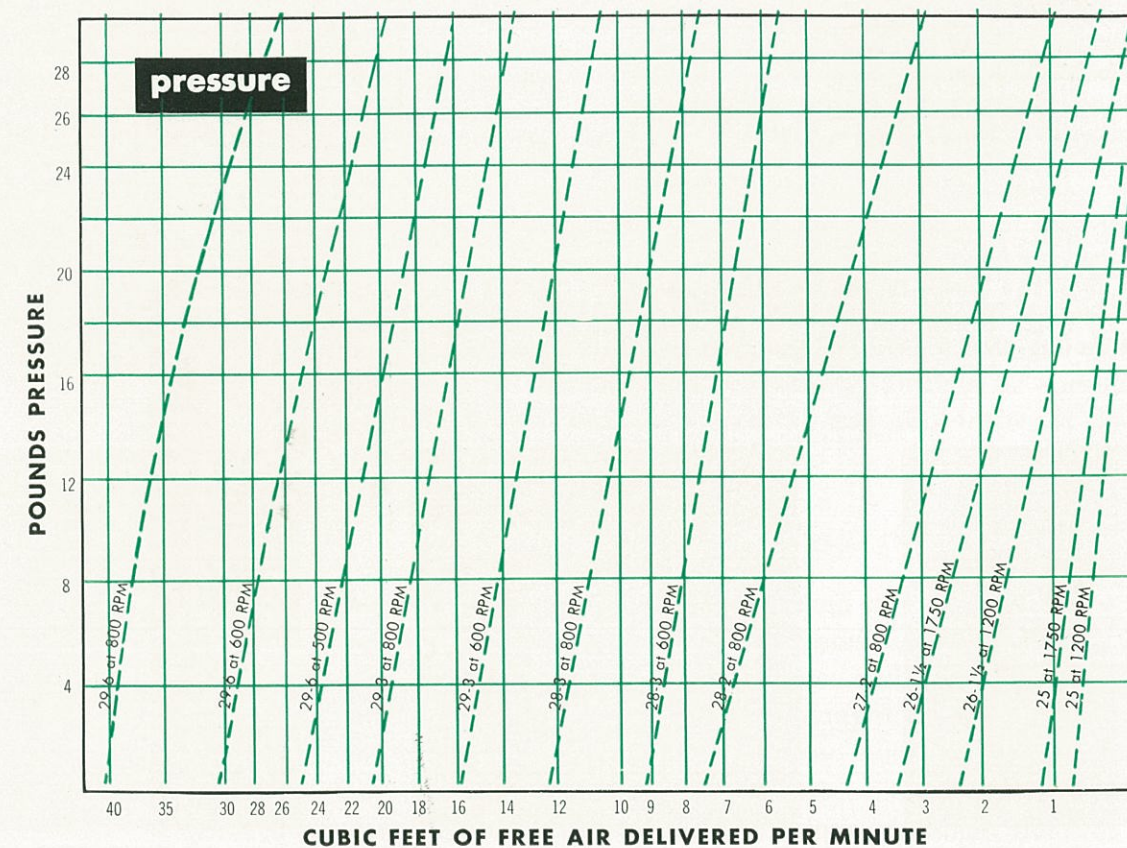
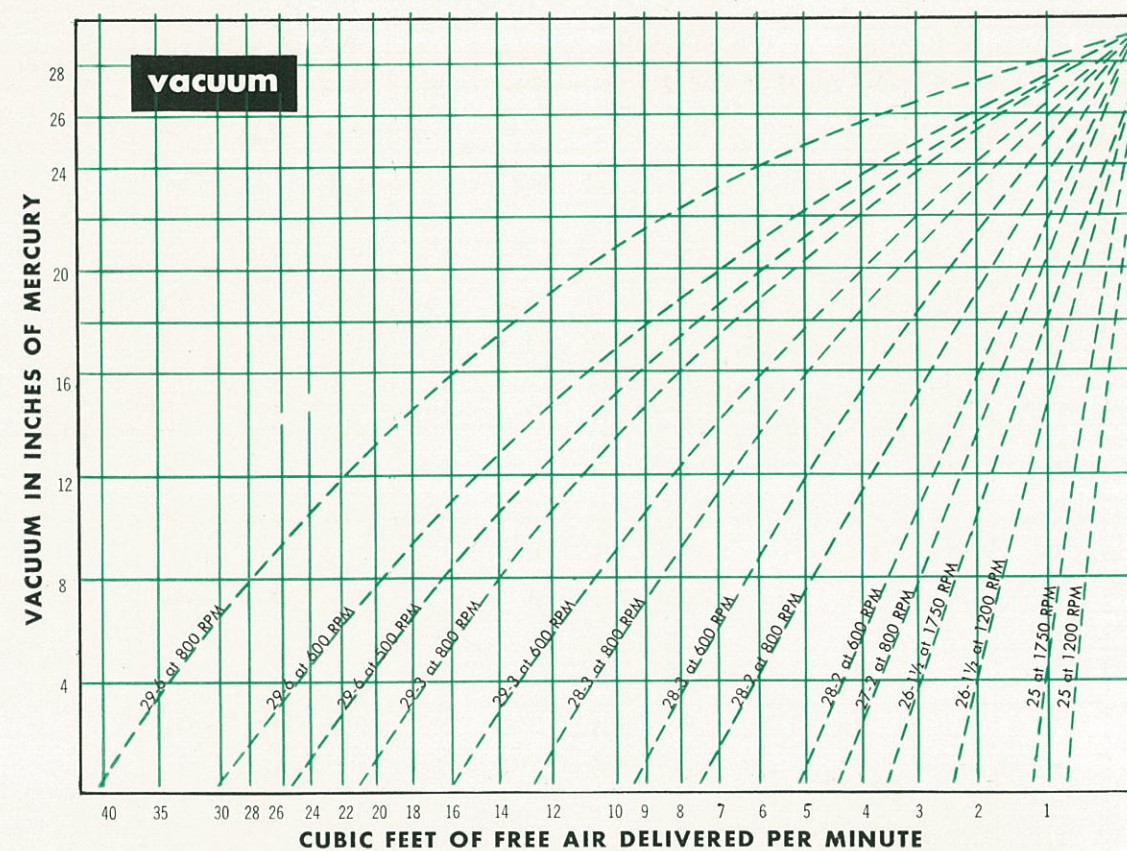
1 — Stuffing Box or Gas Tight Bearing



2 — Ring Oil Bearing



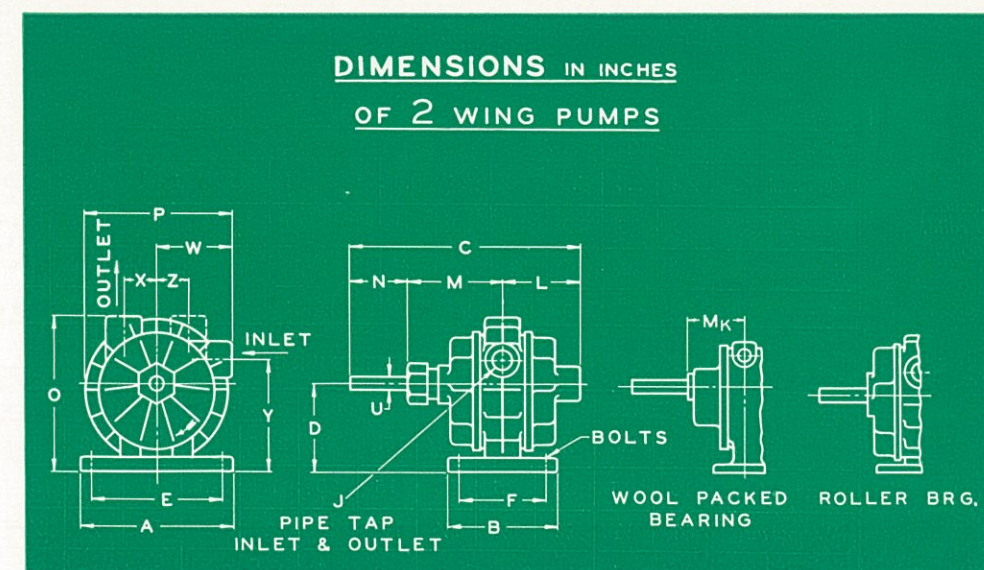
3 — Wool Yarn Bearing



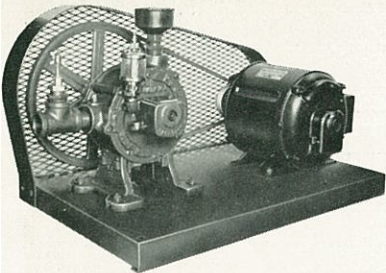
2-WING PUMP SIZES

DIM. LETTER	AIR COOLED							WATER COOLED		
	25	26-1½	27-2	28-2	28-3	29-3	29-6	28-3	29-3	29-6
A	3	3¼	6¾	6¾	6¾	7⅞	7⅞	6¾	7⅞	7⅞
B	1⅝	2¾	1¾	5⅜	5⅜	6¼	6¼	5⅜	6¼	6¼
C	6¼	6⅝	8½	11⅞	12⅞	11¼	14¼	12⅞	11¼	14¼
D	11⅞	2¾	3⅞	4¼	4¼	5⅓ ₃₂	5⅓ ₃₂	5⅓ ₃₂	6⅓ ₃₂	6⅓ ₃₂
E	2½	2⅞	5⅝	5⅞	5¾	6⅞	6⅞	5¾	6⅞	6⅞
F	ON 1	2⅝	ON 1	4⅞	4⅞	5¼	5¼	4⅞	5¼	5¼
J	¼	⅜	½	¾	¾	1	1	¾	1	1
L	1⅓	2¼	2⅞	3⅝	4⅞	3⅞	5⅝	4⅞	3⅞	5⅝
M	2⅓	2⅞	2⅞	4⅞	5⅝	4	5½	5⅞	4	5½
N	1⅝	2⅞	3	2⅞	2⅞	3⅞	3⅞	2⅞	3⅞	3⅞
O	2⅓	4⅓	6	7⅞	7⅞	9⅞	9⅞	8¾	10⅞	10⅞
P	3	3⅝	4⅞	7⅞	7⅞	8⅓	8⅓	7¾	9½	9½
U	⅜	½	⅝	1⅞	1⅞	1	1	1⅞	1	1
W				3⅞	3⅞	4½	4½	4⅞	5	5
X	¾	1⅝	1⅓	1⅝	1⅝	2⅞	2⅞	1⅝	2⅞	2⅞
Y				5½	5½	7⅞	7⅞	6¼	8⅞	8⅞
Z	¾	1⅝	1⅓							
M _k	1⅓	2¼								
BOLTS	¼	¼	⅜	⅜	⅜	⅜	⅜	⅜	⅜	⅜
KEYWAY						¼	¼		¼	¼
TYPE BRG.	W or S	W or S	R	S	S	R	R	S	R	R

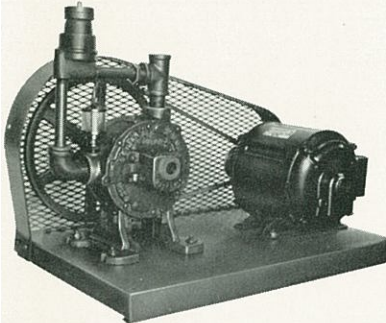
NOTE W = Wool Packed Bearing S = Stuffing Box Type R = Roller Bearing Type



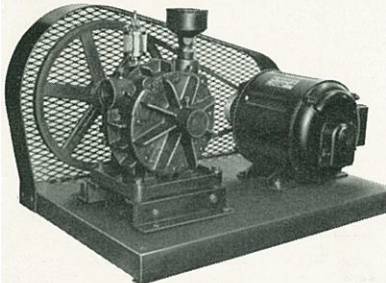
STANDARD MOTOR-DRIVEN AIR PUMPS



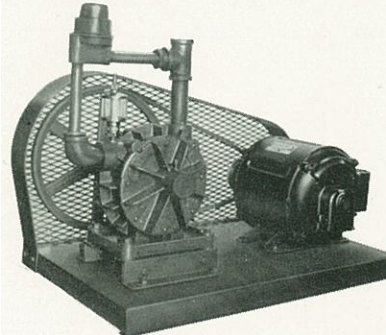
1 — VACUUM UNIT up to 20" Mercury includes manually operated oil cup, vacuum relief valve, and outlet muffler.



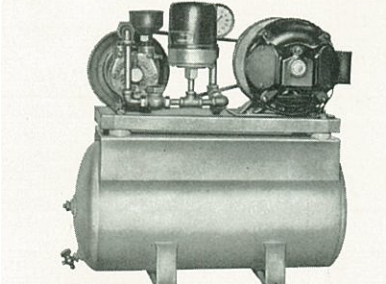
2 — PRESSURE UNIT up to 10 lbs. is equipped with manually operated oil cup, oil return muffler, and pressure relief valve. Inlet muffler supplied only on four smallest pumps.



3 — VACUUM UNIT — 21" to 29" Mercury is provided with manually controlled oil cup, outlet muffler, and fins for air cooling.

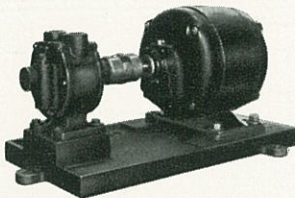


4 — PRESSURE UNIT — 11 to 25 lbs. includes manually operated oil cup, pressure relief valve, oil return muffler, and air cooling fins.

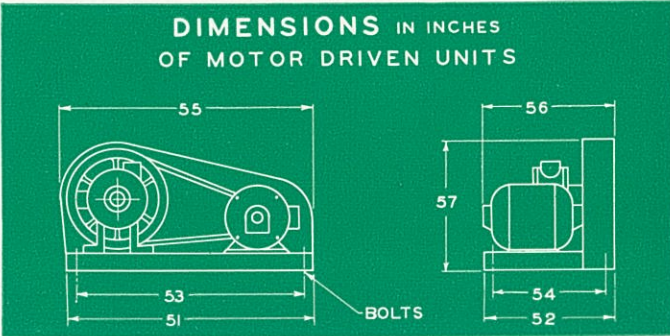


5 — Automatically controlled vacuum and pressure unit.

All Leiman Air Pumps may be supplied as a complete motor driven unit. Equipped with motor (electric or gasoline), V-belt drive, pulleys, base plate, and belt guard, these units are individually designed for specific jobs. Standard equipment includes a manually operated oil cup, pressure or vacuum relief valve, and appropriate muffler. Water cooled air pumps supplied in certain sizes for steady service. (Intermittent service means service periods of not more than one-half hour on and off.)



6 — Above. Direct coupled units are made to order and require gear reducing motors for air pump sizes A to G.



PUMP SIZE →	25 26-1 1/2	26-1 1/2	A 27-2	B B-3 28-2 28-3	C 29-3	C C-4 1/2 C-6 29-3 29-6	29-6	D	E	E	E	F-8 G	F-8 G
MOTOR H.P. →	1/8 to 1/4	1/2 to 3/4	1/4 to 3/4	1/2 to 2	1/2 to 1	1 1/2 to 3	5	3/4 to 3	1 1/2 to 2	3	5	3 to 5	7 1/2 to 10
51	16	18	26 1/2	26 1/2	26 1/2	30	33	30	34 1/2	36	38	41	59
52	11	12	13	13	17	21	26	21	26	26	26 1/2	30	32
53	15	16 1/2	25	25	25	26 1/2	30 1/2	26 1/2	31 1/2	33 3/4	36	39	56
54	7 1/4	10 1/2	11 1/2	11 1/2	15 1/2	19	24 1/2	19	24 1/2	24	24 3/4	28	30
55	16	19	27	28	27	27	33	27	42	42 1/2	42 1/2	41 3/4	57
56	12	13	15 1/2	17	16	17	25	15	24 1/2	26	29	28 1/2	28 1/2
57	9	9	13 1/2	13 1/2	15 1/2	15 1/2	15 1/2	20 1/4	21	21	21	26 1/2	32
BOLTS	3/8	3/8	3/8	3/8	3/8	3/8	7/16	7/16	7/16	7/16	7/16	1/2	1/2

Automatically Controlled Vacuum and Pressure Units

These automatically controlled units are furnished complete with reservoir tank and will operate for vacuum up to 29" or pressure to 25 lbs. Controls allow the pump to work on a variation of 2" or 2 lbs. so that when pressure or vacuum drops 2 points, the pump automatically starts up again and replenishes the supply. In addition to the vacuum or pressure control switch a magnetic contractor (relay) will be supplied when required or a magnetic starter with overload protection.

VACUUM																
Size of Pump	26-1½		A		B		C		D		28-3		29-3		29-6	
Cu. Ft. minute	2.4	2.4	4.8	4.8	8.5	8.5	15	15	25	25	6.2	12.4	15.3	20.4	25.5	40.
Vacuum inches	10	25	10	20	10	20	10	20	10	20	29	29	29	29	24	29
Horsepower	⅙	¼	⅓	½	½	¾	¾	1	1	2	½	1	1½	2	1½	3
Size of Tank	10 x 20"		10 x 20"		12 x 30"		12 x 30"		14 x 30"		12 x 30"		12 x 30"		14 x 30"	

PRESSURE														
Size of Pump	26-1 1/2		28-3		29-3		29-6		A		B		C	
Cu. Ft. minute	2.4	2.4	6.2	9.3	12.4	15.3	20.4	25.5	4.8	4.8	8.5	8.5	15	15
Pressure, lbs.	10	25	20	25	20	15	20	15	5	10	5	10	5	10
Horsepower	1/4	1/2	3/4	1 1/2	1 1/2	1 1/2	2	2	5	5	1/2	3/4	3/4	1
Size of Tank	10 x 20"		12 x 30"		12 x 30"		14 x 30"		10 x 20"		12 x 30"		12 x 30"	

air motors

1 — Right. A Leiman Air Motor provides variable speed control for a plastic rolling mill. Air motor connected to a gear reducer transmits maximum power to a slow turning shaft with a high torque.

The operation of Leiman Air Motor is the reverse of that of an air pump, although similar to it in design. The compressed air is introduced into the air motor where it acts as pressure against the four straight wings and revolves the piston and shaft so that a gear or pulley attached to the shaft will transmit power to any device to be operated. Spark-proof and splash-proof, a Leiman Air Motor should be used where inflammable vapors, gases, dust, etc., are present and where the use of a gasoline engine or electric motor would be dangerous. Some typical applications include:

- Agitators . . . chemical, food, paint, etc.

Automobile crankcase flushers

Conveyor belt drives

Fan and blower drives

Feeds for automatic machines

Fuel hose-reel rewinders

Fuel pump drive for factory carburetor tests

Hoists, small

Liquid pump drives . . . explosive chemicals, paints, etc.
- Machine feeding devices

Portable paint tanks

Pump drives . . . liquid chemicals and paint

Riveting spindles

Spraying units

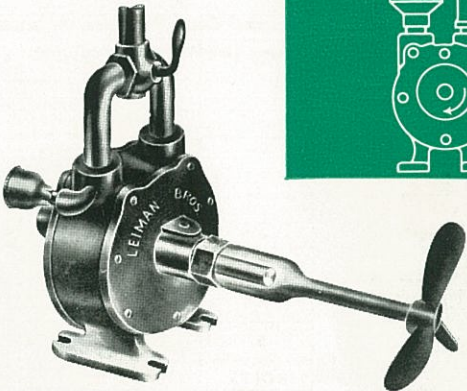
Soot blowers

Tape winding

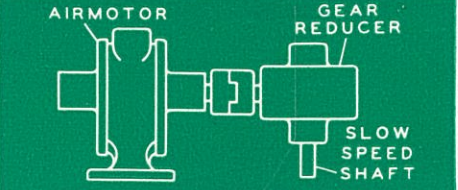
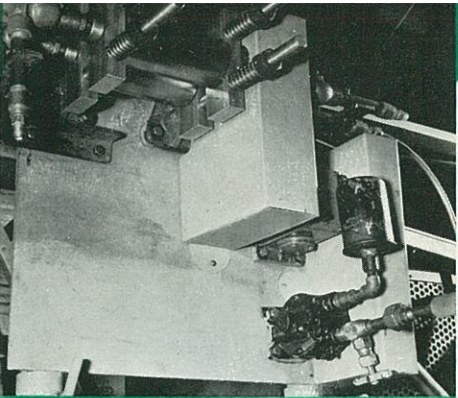
Tension control

Wire spooling machines

DIMENSIONS IN INCHES						
Size of Airmotor	24-1 1/2	24-3	A	B	C	D
Shaft diameter	1/2	1/2	1 1/16	1 1/16	1 3/16	1
Cylinder diameter	3 1/2	3 1/2	5 3/4	5 3/4	7	10
Height	5	5	8	9	10 1/2	12 1/4
Overall length (shaft)	8	9	11	11	14	16 1/2
Pipe connection	3/8	1/2	1/2	3/4	1	1 1/4
Weight (lbs.)	8	13	23	27	45	79
Not reversible						

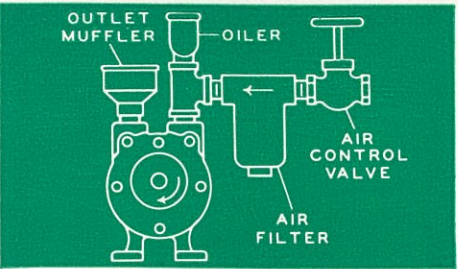


4 — Left. Leiman Air Motors are used to drive propellers for agitating or stirring. Standard equipment includes only oil cup and muffler. Extra equipment here is a 4-way cock for regulation of reversible rotation available with air motors sizes 24-1 1/2 and 24-3.



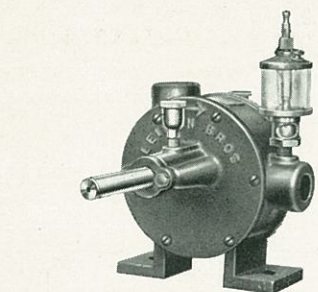
2 — Above. Application of a Leiman Air Motor for slow speed combined with high torque.

3 — Below. Standard equipment includes oiler and muffler. Filter and control valve are extras.

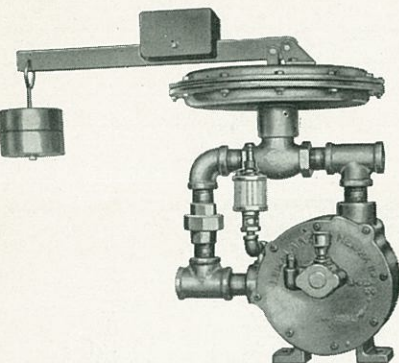


R.P.M.		SIZE OF AIR MOTOR																							
		24-1 1/2				24-3				A				B				C				D			
		Air pressure, lbs.				Air pressure, lbs.				Air pressure, lbs.				Air pressure, lbs.				Air pressure, lbs.				Air pressure, lbs.			
200	H.P.	.03				.06				.12				.30				.75				1.0	2.0		
	C.F.M.	5				10				13				26				52				78	125		
400	H.P.	.06	.12			.12	.24			.16	.35			.50	.90			1.2	1.9	2.5	3.0	1.7	2.7	3.7	4.7
	C.F.M.	6	15			12	30			15	25			30	50			60	100	140	180	90	140	190	240
600	H.P.	.08	.18	.29	.37	.16	.36	.58	.74	.22	.42	.62	.82	.70	1.2	1.6	2.0	1.4	2.1	2.8	3.5	2.2	3.2	4.2	5.2
	C.F.M.	10	17	25	32	20	34	50	64	17	28	40	52	34	56	73	90	68	112	160	208	102	155	215	270
800	H.P.	.11	.23	.36	.47	.22	.46	.72	.94	.27	.52	.74	1.0	.98	1.6	2.2	2.8	1.7	2.5	3.5	4.5				
	C.F.M.	11	18	26	33	22	36	52	66	19	31	45	52	38	62	81	100	76	124	180	236				
1800	H.P.	.15	.41	.68	.94	.30	.82	1.36																	
	C.F.M.	12	21	27	35	24	42	54																	

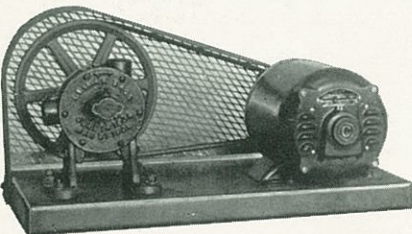
C.F.M. is cubic feet of free air per minute consumed by air motor.



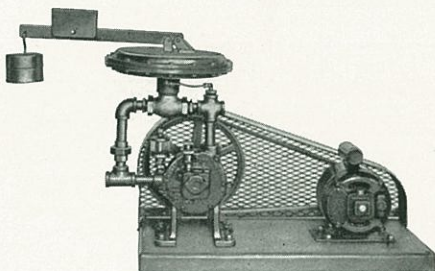
1—Bare gas pump with oil cup.



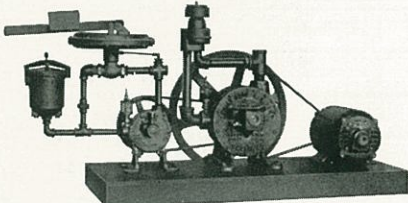
2—Gas pump with diaphragm valve and by-pass.



3—Bare gas pump unit with motor drive.



4—Motor driven gas pump unit with diaphragm valve and by-pass.



5—Gas and air pumps with motor drive, dust separator, diaphragm valve, relief valve, and by-pass. This unit is used for mixing air and gas when used on blow torches, furnaces, etc.

The Leiman Gas Pump was developed for pumping city gas, natural gas, and other non-corrosive gases. Where the normal pressure of city gas is too low for use in manufacturing operations a Leiman Gas Pump will produce a smooth, steady, and constant pressure at the outlet regardless of any variations in the entering pressure.

In the natural gas industry Leiman Air Pumps are used to force the gas into the pipe lines. Very often a non-producing well has been brought back through the use of a Leiman Gas Pump to create a suction which starts the gas flowing again.

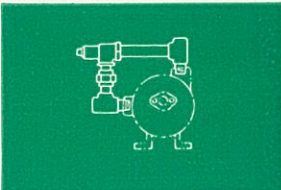
Where a manufacturing operation requires the gas to be mixed with air for use in blow torches, gas furnaces, etc., the solution is a Leiman unit consisting of a gas pump and an air pump to furnish the air.

Accessories . . .

Diaphragm Valve Gas By-Pass. For maintaining non-varying pressures. Valve is extremely sensitive to pressure variations, however small, and is operated automatically. An adjusting lever and weights permit the adjustment of the pressure to suit the requirements. By-pass piping handles all the unused gas and returns it to the inlet side of the pump.

High Pressure Gas By-Pass. A spring pressure relief valve maintains a fairly steady pressure. Suitable for pressures up to 25 pounds.

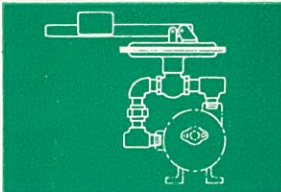
Hand Cock By-Pass. A hand operated cock permits the control of gas pressure and volume.



6—High pressure gas by-pass.

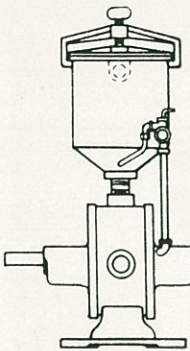


7—Hand cock gas by-pass.

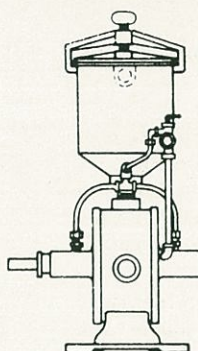


8—Diaphragm valve gas by-pass.

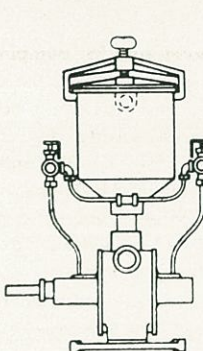
FIGURE NO.	SIZE OF GAS PUMP		26-1½		A	B	C	D	E	F-8
	CU. FT. PER MINUTE DISPLACEMENT		2.4		4.8	8.5	15	25	61	105
	SPEED (R.P.M.)		1200		600	600	400	300	250	200
	INLET AND OUTLET SIZE		¾"		½"	¾"	1"	1 ¼"	1 ½"	2"
	H.P. AT 1 POUND PRESSURE		1/10		¼	¼	¼	½	1	2
	H.P. AT 5 POUNDS PRESSURE		¼		½	½	¾	1	2	5
	SIZE		B		D	E	F-8	G		
	REQUISITE AIR PUMP									
	C.F.M.		8.5		25	61	105	146		
	INLET & OUTLET		¾"		1 ¼"	1 ½"	2"	2 ½"		
1	BARE GAS PUMP WITH OIL CUPS ONLY									
	WEIGHT	8 lbs.	23	27	45	79	148	288		
2	GAS PUMP WITH DIAPHRAGM VALVE & BY-PASS									
	WEIGHT	56	71	75	95	130	200	341		
3	BARE GAS PUMP UNIT WITH MOTOR DRIVE									
	WEIGHT	70 lbs.	95	100	125					
4	GAS PUMP WITH DIAPHRAGM VALVE & MOTOR DRIVE									
	WEIGHT			148	175					
5	GAS & AIR PUMPS WITH MOTOR DRIVE & DUST SEPARATOR									
	H.P.	½	¾	1 ½	2	3				
	SEE size of "Requisite Air Pump"									
	FLOOR SPACE	8 ½ x 32	13 x 47"	13 x 47"	17 x 52	21 x 61				



1 — Feeds oil to pump interior only. This system operates only when pump runs. Drops can be seen through glass. Feed is adjustable and is suitable for 4-wing type pumps for vacuum up to 10 inches.

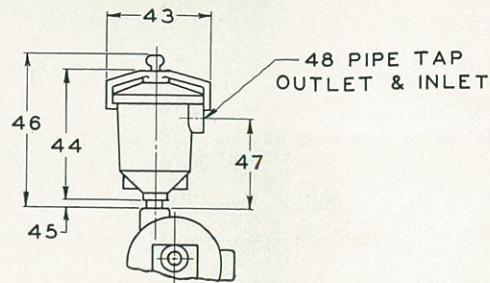


2 — This system feeds oil to interior and bearings. It is designed for 4-wing type pumps which operate at 11 to 20 inches of vacuum. It is similar to system 1.



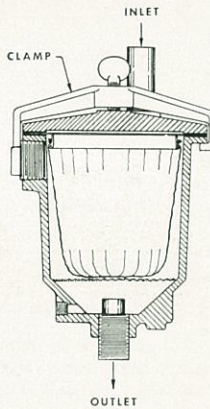
3—Feeding oil to bearings and then to pump interior, this system is suitable for 2-wing type pumps which are rated for 21 to 29 inches of vacuum. Has adjusting valve on each bearing line.

DIMENSIONS IN INCHES OF OILING SYSTEM

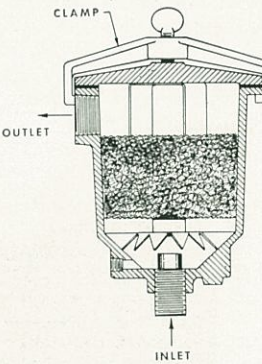


PUMP SIZE	25	26-1½	A 27-2	B 28-2 28-3	C 29-3	C-6 D 29-6	E	F-8	G
43	4 ⅛	5 9/16	6 7/8	6 15/16	8 3/16	9 1/2	13	13	17 5/16
44	5 1/2	6 3/8	8	8	10 1/8	11 9/16	15 5/8	15 5/8	16 5/8
45	1 ¼	1 3/4	1 ½	1 ½	5/8	3/4	1	1	2 ½
46	7 3/4	9	9 5/8	9 1/2	11 1/2	13 3/8	18	18	19 1/2
47	4 3/4	5 3/4	6	6	7 3/4	8 7/8	12 3/4	12 3/4	15 3/8
48	¼	3/8	1/2	3/4	1	1 ¼	1 ½	2	2 ½

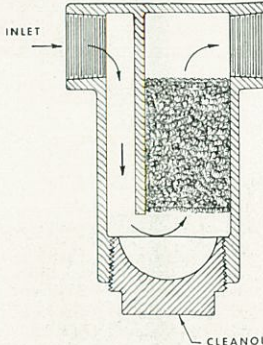
AIR FILTERS AND OIL SEPARATORS



4 — INLET SEPARATOR — For use on the inlet or vacuum side of Leiman Air Pumps to clean the air before it enters the pump. Air or gas passing through the removable cloth bag deposits dirt and grit and prevents wear on the precision fitted parts and prolongs the life of the pump.



5 — OUTLET SEPARATOR — Replaceable filter material absorbs oil vapor from the pressure or outlet side of a Leiman Air Pump and prevents it from blowing into the working area. The large size of the separator does not reduce the flow of air or the pressure.

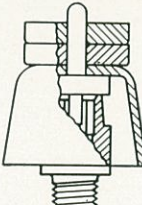


6 — SMALL CAPACITY SEPARATOR — This separator is designed for inlet or outlet, but is suitable for the smaller sizes of Leiman Air and Gas Pumps. It is made only for 3/8", 1/2", and 3/4" pipe sizes.

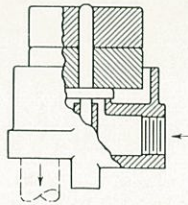
ACCESSORIES



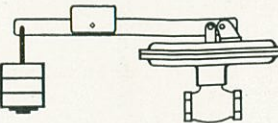
7 — VACUUM RELIEF VALVE — An adjustable safety valve for vacuum up to 20 inches.



8 — PRESSURE RELIEF VALVE — A weighted safety valve for pressures up to 5 pounds.



9 — OIL RETURN MUFFLER — Used on pressure pumps to reduce noise. Relief valve (8) fits inside muffler. Supplied with by-pass piping.



10 — PRESSURE RELIEF VALVE — Sensitive diaphragm type valve for close regulation of air or gas up to 25 pounds.



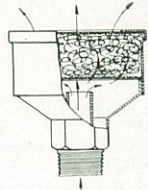
11 — SIGHT FEED OIL CUP — Requires daily filling. Drops are seen through glass and are adjustable to 5 or 10 per minute.



12 — WICK FEED OIL CUP — Requires daily filling. This cup will feed all day at a slow rate.



13 — AIR GAUGE — For indicating vacuum up to 30 inches or pressure to 15 lbs. or 30 lbs. Specify vacuum or pressure when ordering.



14 — MUFFLERS — These mufflers reduce the pump or air motor noise and also absorb some oil. They are usually used on vacuum pump outlet, but can be used on pressure pump inlet. Above left, muffler for pipe sizes 3/8", 1/2", 3/4". Above right, muffler for pipe sizes 1", 1 ¼", 1 ½", 2", 2 ½".